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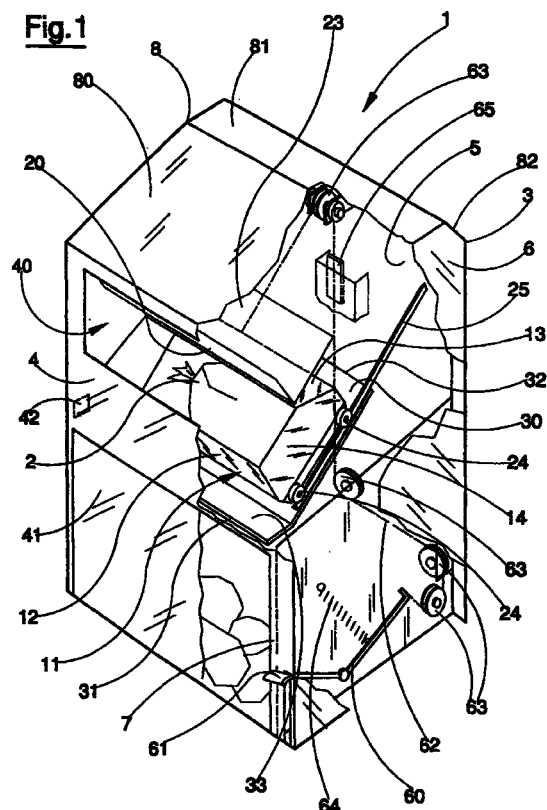
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(54) **Container, especially for the collection of used clothes**

(57) A container for the collection of recyclable materials, especially bags (2) of used clothes, comprises: a box body (3) provided with a frontal opening (40) for the insertion of the material (2), an inclined plane (30) ascending from the front wall (4) of the box body (3) and from a lower height with respect to said opening (40) towards the opposite wall (5), a conveyer (11) movable on the inclined plane (30) and provided with a wall (12) able to push the bag (2) to the upper edge (32) of the inclined plane and thus to cause it to fall on the bottom of the box body.



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Description

[0001] The present invention relates to a container for the collection of recyclable materials, in particular used clothes.

[0002] The use is well known of containers, positioned on public ground, for the collection of recyclable materials. One type of container, destined especially to the collection of used clothes, is provided with an upsettable drawer wherein the clothes are placed, generally enclosed in bags, through an inlet provided in the container. Said drawer is able to rotate, around a horizontal axis parallel to the inlet of the container, from a position for loading the clothes through the inlet to a position wherein they are unloaded by falling inside the container. The rotation of the drawer is obtained by acting manually on a grip provided thereon.

[0003] Containers of this kind present various drawbacks. In the first place, the mechanism whereby clothes are introduced entails limits in the capacity of the container. The inlet and the drawer need to be positioned so they are not excessively high, in order to allow even persons of medium-short height to deposit the bags. Moreover, the bags, introduced into the container through the rotation of the drawer, can occupy only the part of container underlying the drawer itself.

[0004] In the second place, the scope for security is limited. An essential requirement of the containers is the impossibility of removing the material introduced therein. Actually, it is possible without great difficulties, for instance using a pole fitted with a hook at one end, to remove the bags or the clothes once they are inside the containers.

[0005] The main aim of the present invention is to overcome the aforesaid drawbacks. Said aim is attained with the container defined in the first claim. Advantageous embodiments of the invention are defined in the dependent claims.

[0006] The advantages and features of the invention shall be better understood from the detailed description that follows, made with reference to the accompanying drawings, which represent an embodiment provided purely by way of non limiting example, wherein:

- Figure 1 shows a schematic perspective view of a first container in accordance with the invention;
- Figures 2 through 4 show three schematic side views of the container in Figure 1 in three different operating conditions;
- Figure 5 shows a schematic side view of a second container according to the invention;
- Figure 6 shows a schematic perspective view of a third container according to the invention.
- Figure 7 shows a lateral, partial schematic view of a fourth container according to the invention;
- Figure 8 shows a lateral, partial schematic view of a fifth container according to the invention.

[0007] In accordance with the accompanying figures, the number 1 indicates in its entirety a container able to hold within it recyclable materials comprising, for instance, bags 2 containing used clothing items. Container 1 is made of galvanised plate and comprises a box body 3, presenting substantially parallelepiped shape with square or rectangular base, which is defined on the four sides by four vertical walls, and more specifically by a front wall 4, by a rear wall 5 and by two side walls 6. The box body 3 is also closed underneath by a bottom wall 7 and at the top by an additional wall 8. In a preferred embodiment, shown in the figures, the front wall 4 has smaller height than the rear wall 5 and the top wall 8 presents different inclinations with respect to the horizontal ground plane. In particular, the top wall 8 comprises:

- a first front portion 80, which develops from the upper edge of the front wall 4 towards the rear wall 5, inclined by about 30° with respect to a horizontal plane,
- a second median portion 81, adjacent to said first portion 80 and lying essentially horizontal and
- a third rear portion 82 connecting with the upper edge of the rear wall 5; said third portion is inclined by about 45° with respect to a horizontal plane, in the opposite direction with respect to the first portion 80.

[0008] Advantageously, the first portion 80 of the upper wall 8 has greater length than the remaining portions 81 and 82.

[0009] The front wall 4 is provided at the top with an inlet 40 for the insertion of the bags 2 into the container 1; such inlet 40 comprises, in the example shown in the figures, a rectangular opening that develops longitudinally, according to a horizontal direction, between the aforementioned lateral walls 6.

[0010] In the lower part of the front wall 4 a second opening is provided for the removal of the collected bags from the container. Said second opening is fitted with a door 41 provided with security lock, not shown herein.

[0011] Inside the box body 3, an inclined plane 30 is provided which develops starting from the front wall 4 towards the rear wall 5 and transversely connects the lateral walls 6. The lower edge 31 of said inclined plane 30, adjacent to the front wall 4, is placed at a lower height with respect to the inlet 40. The upper edge 32 is free and defines, with the parallel rear wall 5, a passage 50 of sufficient amplitude for the collected material, in particular for a bag 2. The inclined plane 30 is advantageously realised by means of a plate sheet connected laterally to the lateral walls 6 and inclined by about 45° with respect to a horizontal plane.

[0012] In order not to limit the clearance of the lower opening, provided for the removal of the collected bags, the plate sheet, constituting the inclined plane 30,

advantageously presents, in the portion 33 adjacent to the front wall 4, a smaller inclination with respect to a horizontal plane. In particular said portion 33 is substantially parallel to the plane of the ground, i.e. slightly inclined in order to allow the collection and drainage of any rainwater through a hole 42 provided in one of the lateral walls 6.

[0013] For the transportation of the bags 2 along the inclined plane 30, as shall become more readily apparent below, a conveyer element 11 is provided able to slide, in the two directions, between the front wall 4 and the rear wall 5, parallel and above the inclined plane 30. More in particular said conveyer element 11 comprises a first wall 12 (hereafter also called "thrust wall"), substantially perpendicular to the inclined plane 30 and positioned to the side of the front wall 4, and a second wall 13 (hereafter also called "protection wall") positioned to the side of the rear wall 5. The protection wall 13 preferably comprises at least two adjacent portions, respectively parallel to the median portion 81 and to the rear portion 82 of the upper wall 8 of the box body 3.

[0014] Said walls 12,13 of the conveyer 11 develop in the direction of the width of the container and are connected by lateral walls 14. To each of said lateral walls is hinged a pair of small wheels 24 for sliding along rectilinear lines 25, fastened to the lateral ends of the plane 30 and extending beyond the upper edge 32. A wall 20 for security protection is provided inside the box body 3, between the lateral walls 6, above the conveyer element 11. Advantageously, said protection wall 20 is joined to the upper wall 8 and comprises a portion 23 substantially parallel to the inclined plane 30.

[0015] According to the invention, means are provided to move the conveyer 11 along the inclined plane 30. In a particularly advantageous embodiment, shown in the figures from 1 to 4, said means comprise a lever 60, hinged to the lower part of a lateral wall of the container and having an end that projects from the front wall 4 and bears a control pedal 61. At the other end of the lever 60 is connected an end of a rope 62, which runs along a plurality of pulleys 63 and has the second end connected to the protection wall 13 of the conveyer 11.

[0016] In order to reduce the resistance of the conveyer 11 during the phase - described below- wherein the load is dragged along the inclined plane 30 and to slow down its descent after unloading, a spring 64 is provided which acts on the lever 60 in such a way as to apply a force moment concurring in direction and sense with the one produced by pressing the lever 61. To the same end a counter weight 65 is provided, applied to rope 62. The spring 64 and the counter weight 65 are in any case chosen in such a way as to impart a force smaller than the force of gravity acting on the conveyer 11 in the absence of a load.

[0017] The modes of operation of the container 1 constituting the subject of the present invention shall now be described starting from a condition, shown in Figures 1 and 2, wherein the conveyer element 11, under the

effect of the force of gravity, is positioned adjacent to the front wall 4. In this situation it is possible to insert a bag 2 inside the container, through the inlet 40, thereby depositing the bag on the lower part of the inclined plane 30 between the walls 12,13 of the conveyer 11. At this point it is sufficient to compress the pedal 61 with a foot to cause a traction of the rope 62, by effect of the action of the lever 60. This brings about the movement of the conveyer 11 along the guides 25 and consequently the bag 2 is thrust along the inclined plane 30 by effect of the action exerted by the thrust wall 12 (Figure 3). The complete compression of the pedal 61 causes the bag 2 to reach the upper edge 32 of the inclined plane 30 (Figure 4) and subsequently to fall, through the passage 50, onto the bottom 7 of the box body 3. Thanks to the shape of the protection wall 13, the conveyer 11 can be brought in proximity of the rear wall 5, which offers an optimal exploitation of the volumes. When the pedal 61 is released, the conveyer 11, under the effect of the force of gravity, returns to the initial position shown in Figures 1 and 2. It is readily apparent that, in a container provided with a system for the introduction of material in accordance with the description above, there is an optimal exploitation of capacity. Moreover, the vertical dimension of the container is not constrained by the limited height whereat the inlet must be positioned.

[0018] In regard to anti break-in capabilities, as Figures 2 to 4 clearly show, no matter what position the conveyer 11 is in, there is never sufficient clearance to extract the bags from the container through inlet 40. The combination of the protection wall 20, of the protection wall 13 of the conveyer 11 and of the inclined plane 30 (Figure 2) or of the protection wall 20, of the thrust wall 12 of the conveyer 11 and of the inclined plane 30 (Figures 3 and 4) constitutes a complete barrier of the space wherein the bags are collected.

[0019] Figure 5 schematically shows a first embodiment of the container, wherein the rope 62 is connected to a manually actuated lever 60'.

[0020] Figure 6 shows a container according to the invention, wherein the conveyer 11 is subjected to the action of a pair of ropes 620, connected to two levers 600 positioned adjacent to the lateral walls 6 and controlled by a single pedal 610 which extends over the entire width of the container parallel to the front wall 4. In order to lighten the structure of the conveyer 11 and maintain the anti break-in protection characteristics, it is possible to adopt the constructive variation schematically shown in Figure 7. The conveyer 11, in this case, lacks the protection wall and the end of the rope 62 is applied to a cross piece 130 connecting the lateral walls 14. An oscillating wall 34, provided for dosing the passage 50, is equipped with a small hook for engaging a spring-loaded pawl 36 integral with the inclined plane 30. The disengagement of the hook and of the wall is brought about by the lowering of the pawl upon the passage of the conveyer.

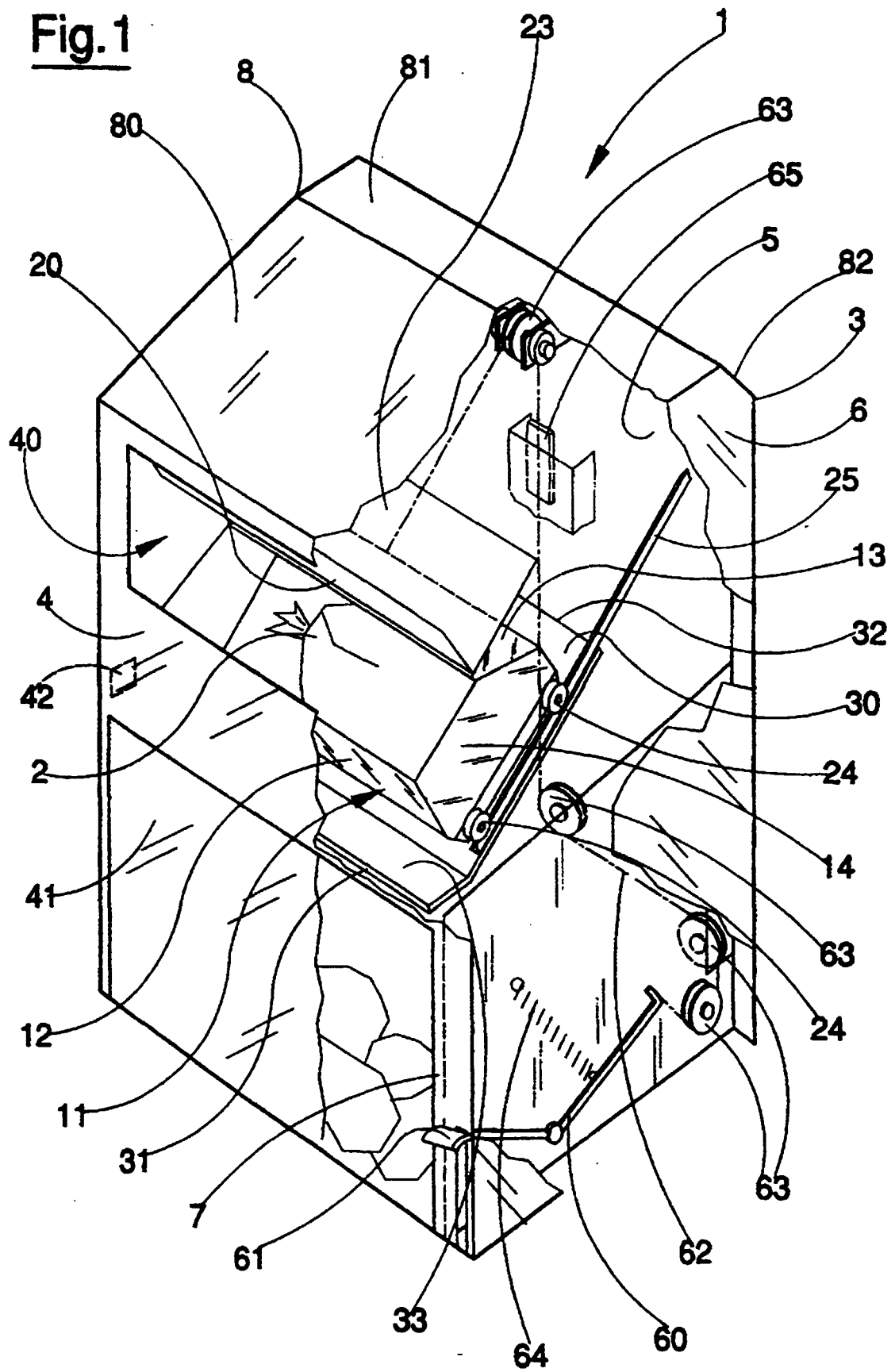
[0021] An additional variation of the container is schematically shown in Figure 8. To thrust the conveyer 11 along the inclined plane 30, a handle 15 is applied to the thrust wall 12. In particular said handle is fitted with an extension comprising two portions 16a, 16b mutually articulated and partially able to be superimposed. In this case as well a counter weight 65 is provided, connected by means of a rope 62' to the protection wall 13 of the conveyer 11.

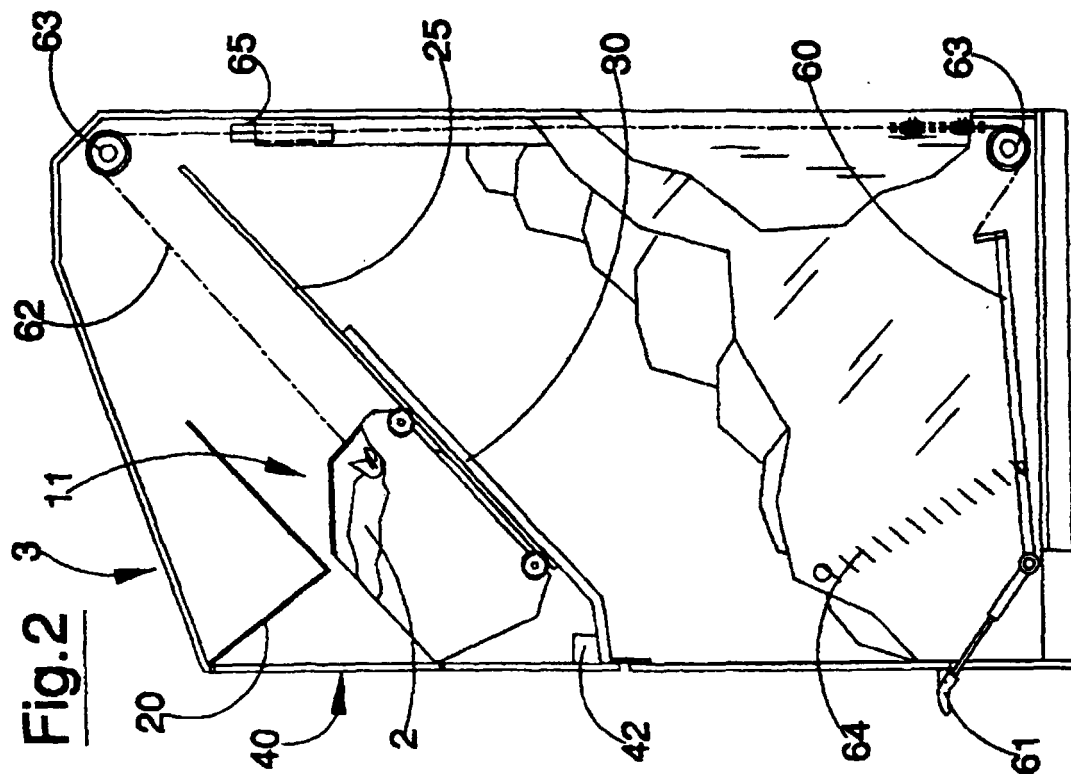
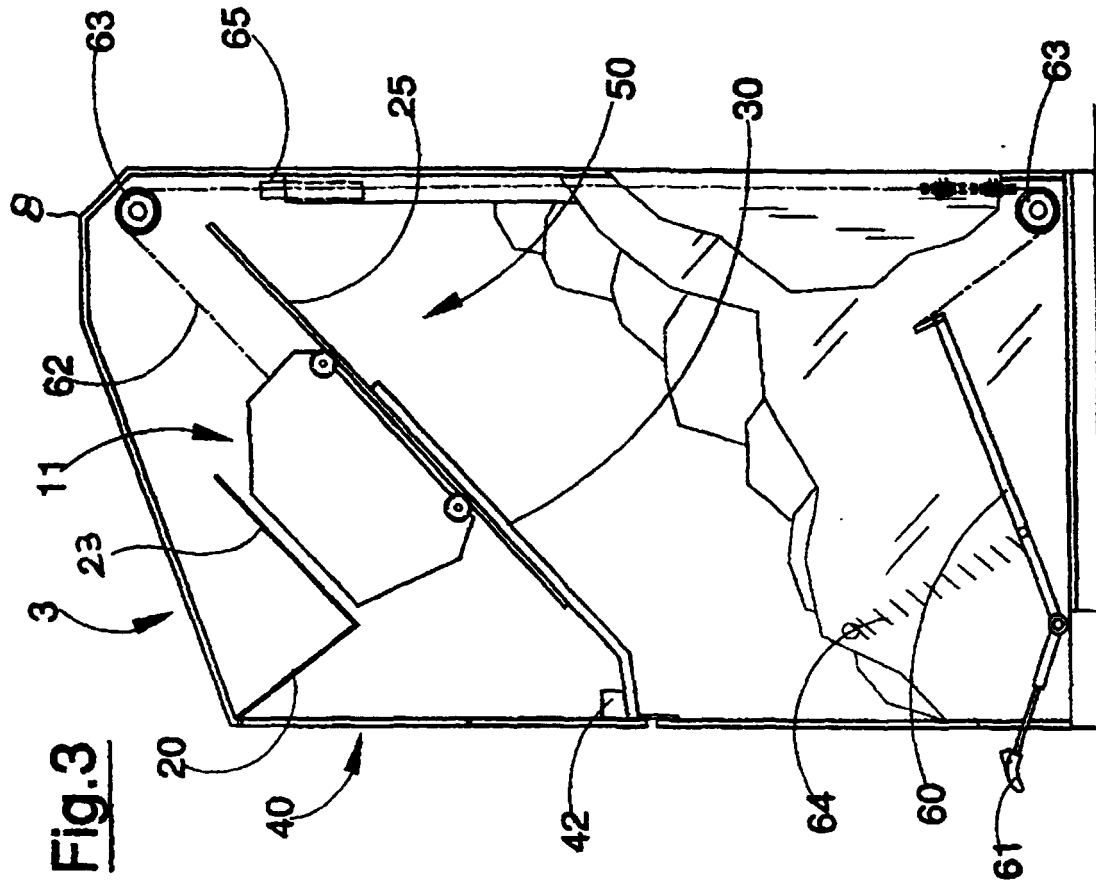
[0022] The invention thus conceived may be subject to numerous modifications and variations, without thereby departing from the scope of the inventive concept. Moreover, all components described herein can be replaced with technically equivalent elements.

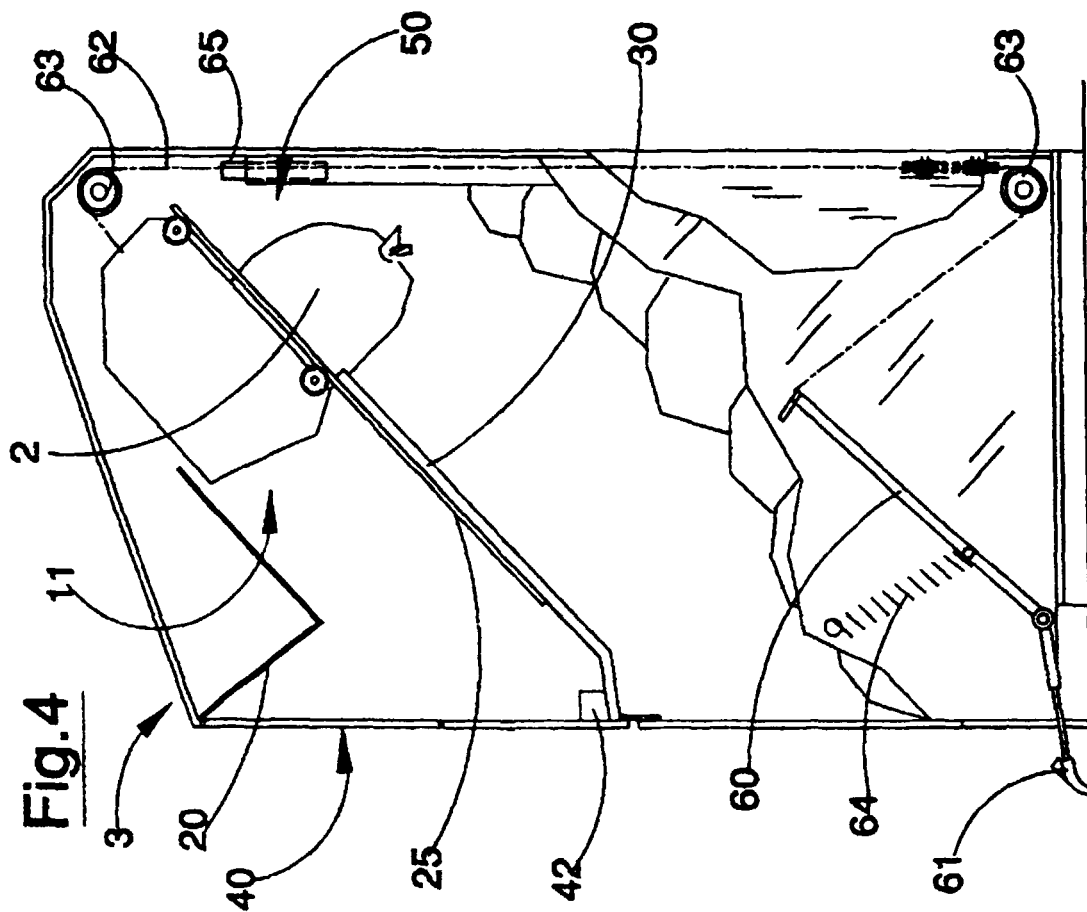
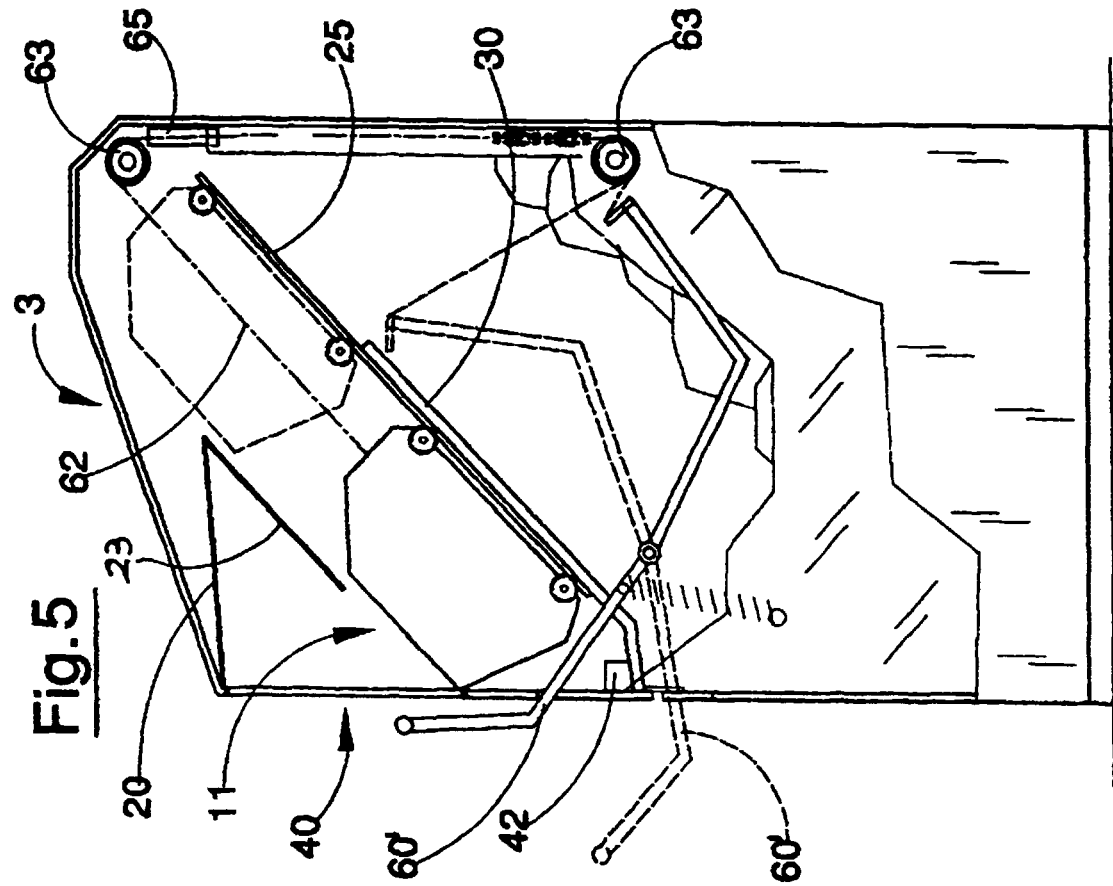
Claims

1. Container for the collection of recyclable materials, comprising a box body (3) provided with a frontal opening (40) for the insertion of the material (2) and with means (11,30) internal to said box body, for collecting said material and unloading it on the bottom (7) of the box body, characterised in that said collecting and unloading means comprise an inclined plane (30) and a conveyer (11) movable in the two directions above it, said inclined plane (30) ascending from the front wall (4) of the box body (3), wherein is provided said opening (40), towards the opposite wall (5), the lower edge (31) being located at a lower height with respect to said opening (40), the upper edge (32) being free and defining, with said opposite wall (5), a passage (50) of sufficient amplitude for the material (2), said conveyer comprising means (12) able to thrust the material (2) along the inclined plane (30), means being provided that are able to cause the motion of the conveyer (11) along the inclined plane (30).
2. Container according to claim 1, characterised in that said conveyer (11) comprises a first wall (12) positioned to the side of said frontal wall (4) and a second wall (13) positioned to the side of said opposite wall (5), said walls (12,13) being mutually spaced so as to allow to deposit the material (2) on the inclined plane (30), said first wall being able to thrust the material (2) along the inclined plane (10), said second wall (13) serving to provide protection against break-ins for the space wherein the material is collected.
3. Container according to claim 1, characterised in that said means able to cause the motion of the conveyer (11) comprise at least one lever (60;60') and at least one rope (62) connected to the lever and to the conveyer by means of a system of pulleys (63), the conveyer being provided with small wheels (24) for sliding on guides (25) provided on the plane (30).
4. Container according to claim 1, characterised in that the portion (33) of said inclined plane (30) adjacent to said front wall (4) presents a smaller inclination, with respect to a horizontal plane, than the rest of the plane (30).
5. Container according to claim 1, characterised in that it comprises means (20,23) able to form a barrier against break-ins for the space wherein the material is collected in co-operation with said means (11,30) for collecting and unloading the material (2).
6. Container according to claim 5, characterised in that said means able to form a barrier against break-ins comprise a protection wall (20) joined to the upper wall (8) of the box body (3) and comprising a portion (23) substantially parallel to the inclined plane (30), said protection wall (20) co-operating with the inclined plane (30) and with the second wall (13) or with the first wall (12) of the conveyer (11) to form a barrier of the space wherein the material is collected (2).
7. Container according to claim 1, characterised in that it comprises elastic (64) and/or counter weight (65) means able to facilitate the ascending motion of the conveyer (11) on the inclined plane (30) and to hinder its fall due to gravity.
8. Container according to claim 1, characterised in that said passage (50) is dosed by a door (34) and in that resolvable means (35,36) are provided for blocking said door.
9. Container according to claim 1, characterised in that said means able to cause the motion of the conveyer (11) along the inclined plane (30) comprise a handle (15) applied to the conveyer (11) and preferably equipped with an extension comprising two mutually articulated portions (16a,16b).

Fig. 1







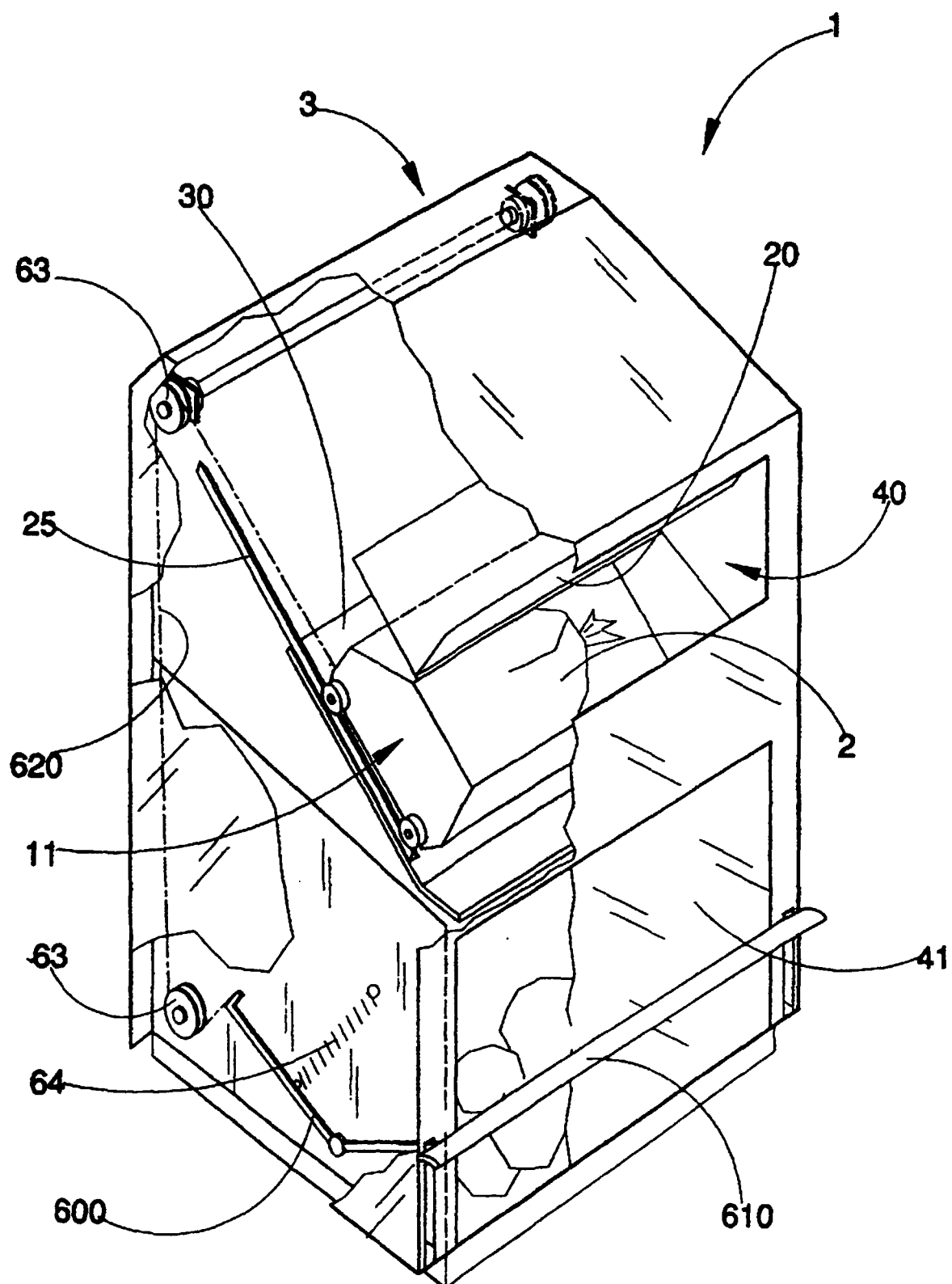


Fig. 6

Fig. 7

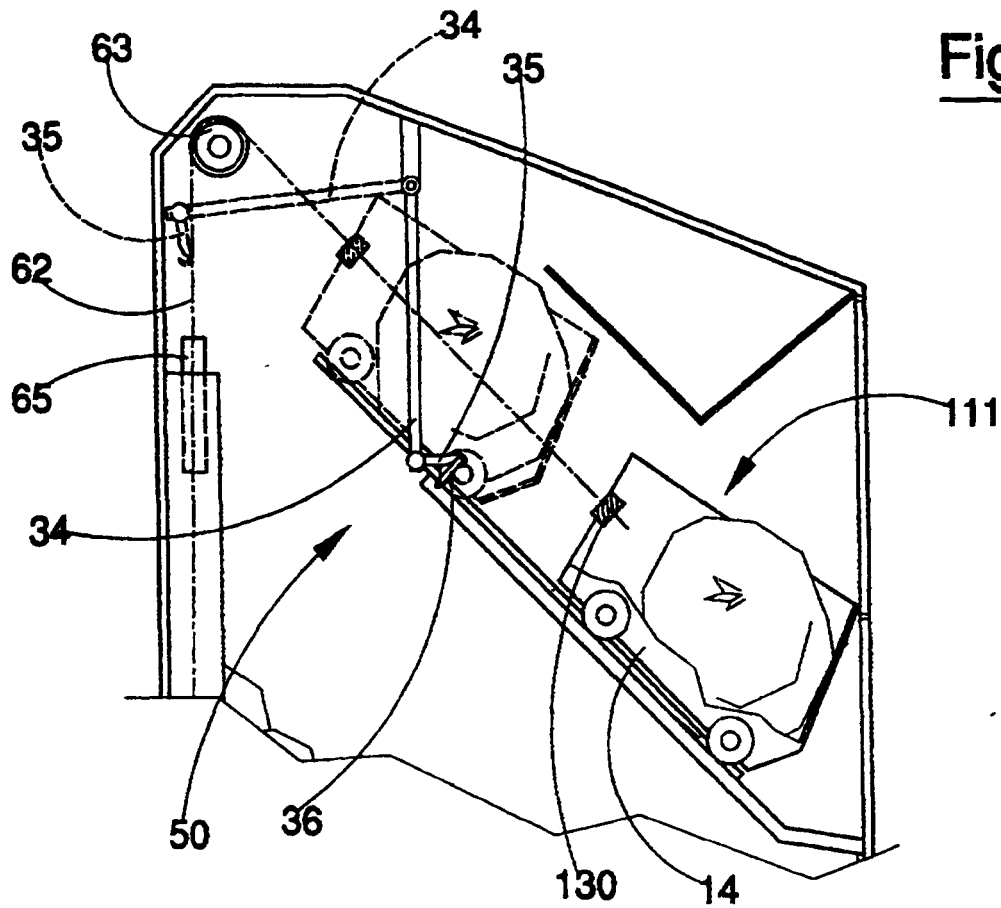
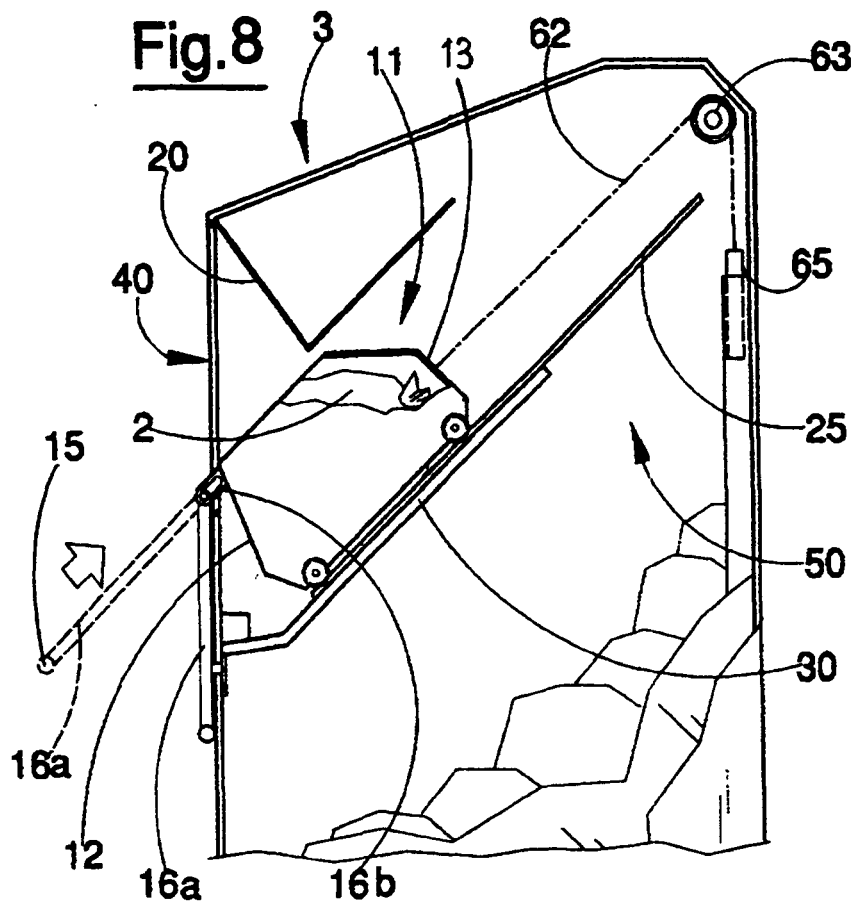


Fig. 8





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EUROPEAN SEARCH REPORT

Application Number
EP 98 12 4865

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 803 451 A (FRIHTJOF W. SCHEPKE) 29 October 1997 (1997-10-29) * figures 1-7 *	1	B65F1/10
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29 November 1999	Examiner Martens, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 12 4865

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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29-11-1999

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